In The Claims:

This list of claims will replace all prior versions and listings of claims in the application. Please amend the claims as set forth below.

1. (Currently amended) An ultrasound imaging system, comprising:

an interface for receiving user input; [[and]]

a controller coupled to the interface, the controller being adapted and configured to adjust parameters for a catheter-based ultrasound probe in response to received user input; and

a catheter-based ultrasound probe coupled to the controller,

wherein the controller is programmed to:

receive a user request for a desired imaging depth;

automatically determine an imaging frequency that corresponds to the desired imaging depth; and

adjust the ~~imaging~~ frequency of ~~the system~~ signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the desired imaging depth.

2. (Original) The ultrasound imaging system of claim 1, wherein the determined imaging frequency is selected from a range of incremented frequencies separated by increments of about 0.5 MHz.

3. (Original) The ultrasound imaging system of claim 1, wherein the determined imaging frequency is selected from a range of incremented frequencies separated by increments of about 0.1 MHz.

4. (Original) The ultrasound imaging system of claim 1, wherein the determined imaging frequency is within a range of about 2 MHz to about 20 MHz.

5. (Original) The ultrasound imaging system of claim 1, wherein receiving a user request for a desired imaging depth comprises receiving a user request for a change in a present imaging depth.

6. (Original) The ultrasound imaging system of claim 1, wherein receiving a user request for a desired imaging depth comprises receiving a user request for a scan through a range of frequencies.

7. (Original) The ultrasound imaging system of claim 6, wherein determining an imaging frequency for the catheter-based ultrasound probe that corresponds to the desired imaging depth comprises progressively determining a next imaging frequency for the scan through the range of frequencies.

8. (Currently amended) The ultrasound imaging system of claim 1,

wherein receiving a user request for a desired imaging depth comprises receiving user designation of a feature within an image,

wherein automatically determining an imaging frequency that corresponds to the desired imaging depth comprises automatically determining an imaging frequency that corresponds to the user designated feature, and

wherein adjusting the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe comprises automatically adjusting the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the user designated feature.

9. (Currently amended) The ultrasound imaging system of claim 1, wherein the controller is further programmed to:

receive an ultrasound image from the catheter-based ultrasound probe;

determine a signal attenuation in the received ultrasound image at the determined imaging frequency;

determine an imaging frequency that corresponds to the determined signal attenuation; and

automatically adjust the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the determined signal attenuation.

10. (Currently amended) The ultrasound imaging system of claim 9, wherein the controller is further programmed to:

receive a signal from ~~a medical instrument~~ an electrocardiogram and correlate the signal with the received ultrasound image.

11. (Currently amended) The ultrasound imaging system of claim 9,

wherein the controller is further programmed to compare the determined signal attenuation to a predicted signal attenuation, and

wherein the controller adjusts the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the determined signal attenuation if the determined signal attenuation diverges from the predicted signal attenuation by at least a known value.

12. (Currently amended) The ultrasound imaging system of claim 1, wherein the controller is further programmed to:

automatically process a first image of a feature of interest imaged at the determined imaging frequency to measure image resolution;

adjust the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe by a delta-frequency;

automatically process a second image of the feature of interest imaged at the delta-frequency adjusted imaging frequency to measure image resolution;

automatically compare [[a]] the measured resolution of the first image to [[a]] the measured resolution of the second image; [[and]]

automatically adjust the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency if the measured resolution of the first image is better than the measured resolution of the second image; and

automatically adjust the frequency of signals applied to the catheter-based ultrasound probe to the adjusted imaging frequency if the measured resolution of the second image is better than the measured resolution of the first image.

13. (Currently amended) The ultrasound imaging system of claim [[12]] 1, wherein the controller is further programmed to:

receive a signal from an electrocardiogram and correlate the signal with the received ultrasound image;

acquire a first image at a point in a cardiac cycle based on signals received from the electrocardiogram;

automatically process the first image of a feature of interest imaged at the determined imaging frequency to measure image resolution;

adjust the frequency of signals applied to the catheter-based ultrasound probe by a delta-frequency;

acquire [[the]] a second image at ~~nearly~~ approximately the same point in [[a]] the cardiac cycle as the first image based on signals received from the electrocardiogram;

automatically process the second image of the feature of interest imaged at the delta-frequency adjusted imaging frequency to measure image resolution;

compare the measured resolution of the first image to the measured resolution of the second image;

automatically adjust the frequency of signals applied to the catheter-based ultrasound probe to the determined imaging frequency if the measured resolution of the first image is better than the measured resolution of the second image; and

automatically adjust the frequency of signals applied to the catheter-based ultrasound probe to the adjusted imaging frequency if the measured resolution of the second image is better than the measured resolution of the first image.

14. (Currently amended) A method of controlling an ultrasound imaging system including a catheter-based ultrasound probe, comprising:

receiving a user request for a desired imaging depth;

automatically determining an imaging frequency that corresponds to the desired imaging depth; and

adjusting the ~~imaging~~ frequency of ~~the system~~ signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the desired imaging depth.

15. (Original) The method of claim 14, wherein the determined imaging frequency is selected from a range of incremented frequencies separated by increments of about 0.5 MHz.

16. (Original) The method of claim 14, wherein the determined imaging frequency is selected from a range of incremented frequencies separated by increments of about 0.1 MHz.

17. (Original) The method of claim 14, wherein the determined imaging frequency is within a range of about 2 MHz to about 20 MHz.

18. (Original) The method of claim 14, wherein receiving a user request for a desired imaging depth comprises receiving a user request for a change in the present imaging depth.

19. (Original) The method of claim 14, wherein receiving a user request for a desired imaging depth comprises receiving a user request for a scan through a range of frequencies to identify features at various depths.

20. (Original) The method of claim 19, wherein determining an imaging frequency for the catheter-based ultrasound probe that corresponds to the desired imaging depth comprises progressively determining a next imaging frequency for the scan through the range of frequencies.

21. (Currently amended) The method of claim 14,

wherein receiving a user request for a desired imaging depth comprises receiving user designation of a feature within an image,

wherein determining an imaging frequency that corresponds to the desired imaging depth comprises automatically determining an imaging frequency that corresponds to a distance from a transducer to the user designated feature, and

wherein adjusting the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe comprises automatically adjusting the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the user designated feature.

22. (Currently amended) The method of claim 14, further comprising:

receiving an ultrasound image from the catheter-based ultrasound probe;

determining a signal attenuation in the received ultrasound image;

determining an imaging frequency that corresponds to a reduced signal attenuation; and

automatically adjusting the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the reduced signal attenuation.

23. (Currently amended) The method of claim 14, further comprising:

automatically processing a first image of a feature of interest imaged at the determined imaging frequency to measure image resolution;

adjusting the ~~imaging~~ frequency of ~~the system~~ signals applied to the catheter-based ultrasound probe by a delta-frequency;

automatically processing a second image of a feature of interest imaged at the delta-frequency adjusted imaging frequency to measure image resolution;

automatically comparing ~~image quality~~ the measured resolution of the first image to ~~image quality~~ the measured resolution of the second image; [[and]]

automatically adjusting the ~~imaging~~ frequency of ~~the system~~ signals applied to the catheter-based ultrasound probe to the determined imaging frequency if the measured resolution of the first image is better than the measured resolution of the second image; and

automatically adjusting the frequency of signals applied to the catheter-based ultrasound probe to the adjusted imaging frequency if the measured resolution of the second image is better than the measured resolution of the first image.

Claims 24 and 25 cancelled.

26. (Currently amended) An ultrasound imaging system, comprising:

a catheter-based ultrasound probe,

means for receiving a user request for a desired imaging depth;

means for automatically determining an imaging frequency that corresponds to the desired imaging depth; and

means for adjusting the ~~imaging~~ frequency ~~the system~~ of signals applied to the catheter-based ultrasound probe to the determined imaging frequency that corresponds to the desired imaging depth.

27. (New) The method of claim 14, further comprising:

receiving a signal from an electrocardiogram and correlate the signal with the received ultrasound image;

acquiring a first image at a point in a cardiac cycle based on signals received from the electrocardiogram;

automatically processing the first image of a feature of interest imaged at the determined imaging frequency to measure image resolution;

adjusting the frequency of signals applied to the catheter-based ultrasound probe by a delta-frequency;

acquiring a second image at approximately the same point in the cardiac cycle as the first image based on signals received from the electrocardiogram;

automatically processing the second image of the feature of interest imaged at the delta-frequency adjusted imaging frequency to measure image resolution;

comparing the measured resolution of the first image to the measured resolution of the second image;

automatically adjusting the frequency of signals applied to the catheter-based ultrasound probe to the determined imaging frequency if the measured resolution of the first image is better than the measured resolution of the second image; and

automatically adjusting the frequency of signals applied to the catheter-based ultrasound probe to the adjusted imaging frequency if the measured resolution of the second image is better than the measured resolution of the first image.

28. (New) The ultrasound imaging system of claim 26, further comprising:

means for receiving a signal from an electrocardiogram and correlating the signal with ultrasound images received from the catheter-based ultrasound probe;

means for acquiring a first image at a point in a cardiac cycle based on signals received from the electrocardiogram;

means for automatically measuring image resolution of the first image of a feature of interest imaged at the determined imaging frequency;

means for adjusting the frequency of signals applied to the catheter-based ultrasound probe by a delta-frequency;

means for acquiring a second image at approximately the same point in the cardiac cycle as the first image based on signals received from the electrocardiogram;

means for automatically measuring image resolution of the second image of the feature of interest imaged at the delta-frequency adjusted imaging frequency;

means for comparing the measured resolution of the first image to the measured resolution of the second image;

means for automatically adjusting the frequency of signals applied to the catheter-based ultrasound probe to the determined imaging frequency if the measured resolution of the first image is better than the measured resolution of the second image; and

means for automatically adjusting the frequency of signals applied to the catheter-based ultrasound probe to the adjusted imaging frequency if the measured resolution of the second image is better than the measured resolution of the first image.